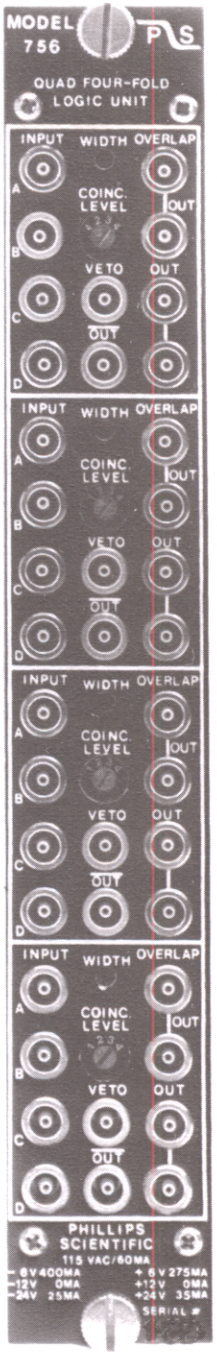
Phillips Scientific

Logic Unit

NIM MODEL 756

FEATURES

- VERSATILE LOGIC MODULE WITH MAJORITY LEVEL SELECTION
- FOUR INDEPENDENT CHANNELS
- BOTH OVERLAP AND UPDATING OUTPUTS
- 150 MHz RATE UPDATING AND 300 MHz OVERLAP
- FAST ANTI-COINCIDENCE CAPABILITY



DESCRIPTION

The model 756 logic unit contains four channels of four input logic with veto in a single width NIM module. Logic AND, OR majority logic, fan-in/fan-out, and anti-coincidence functions can be performed with this versatile module. All functions are direct coupled and operate with input overlap times as narrow as 1 nSEC.

Each channel has four logic inputs, an anti-coincidence input, a coincidence level switch, and five outputs. The inputs are enabled by connecting the input cable to the desired input, eliminating errors often occuring with switched inputs. The setting of the coincidence level switch then determines whether a logic, OR, AND, or majority logic function will produce an output.

After the inputs have satisfied the logic function desired, triggering of a regenerative stage produces a standardized output pulse for the three updating outputs, variable from 4 nSEC to 1 uSEC, independent of the input pulse shapes or overlap times. The two overlap outputs bypass the regenerative stage and produce output widths equal to the input overlap time. This permits outputs up to the maximum input rate capability of 1 nSEC width and 300 MHz rate.

The outputs are the current source type with two pairs of negative bridged outputs and one complement for each channel. When only one output of a bridged pair is used, a double-amplitude NIM pulse (-32 mA) is generated for driving long cables with narrow pulse widths. The outputs have transition times of typically 1.0 nSEC, and their shapes are virtually unaffected by the loading conditions of the other outputs.

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INPUT CHARACTERISTICS

A, B, C, D:

Four inputs per section, LEMO connectors; accepts NIM level logic signals (-500 mV); 50 ohm input impedance direct coupled; input reflections are less than ±5% for a 1 nSEC rise-time. Inputs are protected against damage from ±50 volt input transients. Inputs respond to a 1 nSEC or greater input width.

Fast Veto:

One input per section, LEMO connector; accepts NIM level logic signal (-500 mV); 50 ohm input impedance, direct coupled; less than ±5% input reflection for a 1 nSEC risetime, protected against damage ±50 volt input transients. Requires a 3.5 nSEC minimum input width in time with the input pulse leading edge to inhibit the updating outputs, and gates the overlap outputs.

Bin Gate:

Rear-panel slide switch enables or disables the slow bin gate via the rear connector. Signal levels are in accordance with the TID-20893 standard.

OUTPUT CHARACTERISTICS

General:

Five outputs per section, two pairs of negative bridged and one complemented NIM. The two pairs of bridged outputs are quiescently 0 mA and -32 mA during output (-1.6 V into 50 ohms or -.8 V into 25 ohms). The complemented output is quiescently -16 mA and 0 mA during output. Risetimes and falltimes are less than 1.5 nSEC, and the output pulse shapes are optimized when the bridged outputs are 50 ohm terminated.

Updating Operation:

The output pulse will be extended if a new input pulse occurs while the output is active. This provides deadtimeless operation and 100% duty cycle can be achieved.

Width Control

One control per section; 15-turn screwdriver adjustment. Outputs are continuously variable from 4 nSEC to 1 uSEC: better than 0.15%/°C stability.

Overlap Operation:

Outputs will equal the input coincidence time. Capable of producing 1 nSEC or greater output width.

GENERAL PERFORMANCE

Functions:

Logic AND, OR, majority logic, and logic fan-in/fan-out. All functions have leading edge inhibit for the standardized updating outputs, and gated inhibit for the overlap outputs.

Rate:

Updating - 150 MHz minimum, input to output. Typically 160 MHz.
Overlap - 300 MHz minimum, input to output. Typically 325 MHz.

Double-Pulse Resolution:

Updating - Less than 6.5 nSEC; Typically 6 nSEC with output width set at minimum.
Overlap - Less than 3.3 nSEC; Typically 3.0 nSEC.

Input to Output Delay:

Updating - Less than 8.5 nSEC.
Overlap - Less than 5.0 nSEC.

Multiple Pulsing:

One and only one output pulse regardless of input pulse amplitude or duration.

Power Supply Requirements:

-6 V @ 400 mA	+6 V @ 250 mA
-12 V @ 165 mA	+12 V @ 0 mA
-24 V @ 60 mA	+24 V @ 35 mA

115 VAC @ 60 mA

Note: All currents within NIM specifications limits allowing a full-powered bin to be operated without overloading.

Operating Temperature:

O°C to 70°C ambient.

Packaging:

Standard single width NIM module in accordance with TID-20893 and Section 524.

Options:

Call Phillips Scientific to find out about available options.

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